WHAT IS CLAIMED IS:

1. A method for providing undervoltage relay control in a circuit breaker, the method comprising the steps of :

providing an undervoltage relay apparatus, including a mechanical latch assembly having a mechanical latch mechanism and a solenoid, coupled to the circuit breaker, with the solenoid in selective contact with the mechanical latch assembly;

providing an electrical circuit connected to the undervoltage relay apparatus and providing a pre-defined voltage;

receiving a control voltage from a host;

conditioning the control voltage in the electric circuit independently of characteristics of the solenoid, wherein if the received voltage is less than the pre-defined voltage the electrical circuit will remove power to the solenoid allowing the solenoid to contact the mechanical latch mechanism and trip the circuit breaker.

2. The method of claim 1, including the step of varying the pre-defined voltage.

3. The method of claim 2, wherein the pre-defined voltage is set at 4.5 volts.

4. The method of claim 1, including the steps of:

providing a second control voltage greater than the pre-defined voltage;

applying power to the solenoid; and

resetting the circuit breaker.

5. The method of claim 4, including the step of detecting a magnitude qualification of the control voltage.

6. The method of claim 5, wherein detecting includes engaging a detector output driver wherein if the control voltage falls below 4.5 volts, the detector issuing a low gate level and deactivating a main driver MOSFET and the solenoid to trip the circuit breaker.

7. The method of claim 5, wherein the detecting includes the steps of:

disengaging the detector output driver if the control voltage is above 4.5 volts;

enabling a gate of the main driver MOSFET;

receiving a gate charge through a resistor; and

providing power to the solenoid to allow the circuit breaker to be reset.

8. The method of claim 1, including the step of preventing the circuit breaker from resetting as long as the control voltage is below the pre-defined voltage.

9. The method of claim 1, wherein the method can be performed in a temperature range from at least -40C to +120C.

10. The method of claim 1, wherein the step of receiving includes providing electrostatic discharge protection.

11. The method of claim 1, wherein the control voltage is one of alternating type voltage and direct type voltage.

12. An undervoltage relay controller apparatus monitoring voltage of a circuit breaker, the undervoltage relay controller apparatus comprising:

a housing;

a latch assembly mounted in the housing and having a latch mechanism and a solenoid, with the solenoid in selective contact with the latch mechanism; and

an electrical circuit, having a voltage input and voltage output, mounted in the housing and coupled to the latch assembly,

wherein a control voltage input to the electrical circuit is conditioned, independently of characteristics of the solenoid, and wherein if the received control voltage input is less than a pre-defined voltage , the electrical circuit will remove power to the solenoid allowing the solenoid to contact the latch mechanism and trip the circuit breaker.

13. The undervoltage relay controller apparatus of claim 12, wherein the pre-defined voltage is set at 4.5 volts.

14. The undervoltage relay controller apparatus of claim 12, wherein the electrical circuit includes an electrostatic discharge protection circuit coupled to the control voltage input.

15. The undervoltage relay controller apparatus of claim 12, wherein the control voltage is one of alternating type voltage and direct type voltage.

16. The undervoltage relay controller apparatus of claim 12, wherein the electrical circuit includes a voltage detector, coupled to the voltage input and voltage output, the detector having an internal voltage divider, a current source, a precision voltage reference, a hysteresis switch , a comparator and an output driver.

17. The undervoltage relay controller apparatus of claim 12, wherein a second control voltage is conditioned by the electrical circuit, and wherein if the received second control voltage input greater than the pre-defined voltage, the electrical circuit will apply power to the solenoid allowing the solenoid to disengage from the latch mechanism and reset the circuit breaker.

18. The undervoltage relay controller apparatus of claim 12, wherein the apparatus can operate in a temperature range of at least -40C to +120C.

19. An undervoltage relay controller apparatus monitoring voltage of a circuit breaker having a trip assembly, the undervoltage relay controller apparatus comprising:

a housing;

a means for contacting the trip assembly mounted in the housing; and

a means for monitoring the voltage of the circuit breaker and coupled to the means for contacting,

wherein a control voltage input to the means for monitoring is conditioned, independently of characteristics of the means for contacting, and wherein if the received control voltage input is less than a pre-defined voltage , the means for monitoring will remove power to the means for

contacting allowing the means for contacting to contact the trip assembly and trip the circuit breaker.

20. The undervoltage relay controller apparatus of claim 19, wherein the pre-defined voltage is set at 4.5 volts.

21. The undervoltage relay controller apparatus of claim 19, wherein the control voltage is one of alternating type voltage and direct type voltage.

22. The undervoltage relay controller apparatus of claim 19, wherein a second control voltage is conditioned by the means for monitoring, and wherein if the received second control voltage input greater than the pre-defined voltage, the means for monitoring will apply power to the means for contacting allowing the means for contacting to disengage from the trip assembly and reset the circuit breaker.

23. The undervoltage relay controller apparatus of claim 19, wherein the apparatus can operate in a temperature range of at least -40C to +120C.